Force XXI Planning Using the Maneuver Control System

by Captain Michael Dane Acord

The Maneuver Control System (MCS) and the Army Tactical Command and Control System (ATCCS) are integral parts of Force XXI initiatives. As a member of the 4th Infantry Division, I have tested these systems and their effects on our current doctrine and tactics, techniques and procedures (TTPs). I am writing this article for two reasons. First, I want to inform others in the Army that MCS works. There are marked advantages, with respect to planning, that the MCS and ATCCS brings to the fight. I will provide some TTPs using MCS that will enhance the brigade battle staff's planning process.

Second, I want to raise awareness of specific challenges MCS and ATCCS have to overcome before fielding in the 21st century. I am writing this article from the perspective of the brigade staff for current and future brigade staff members.

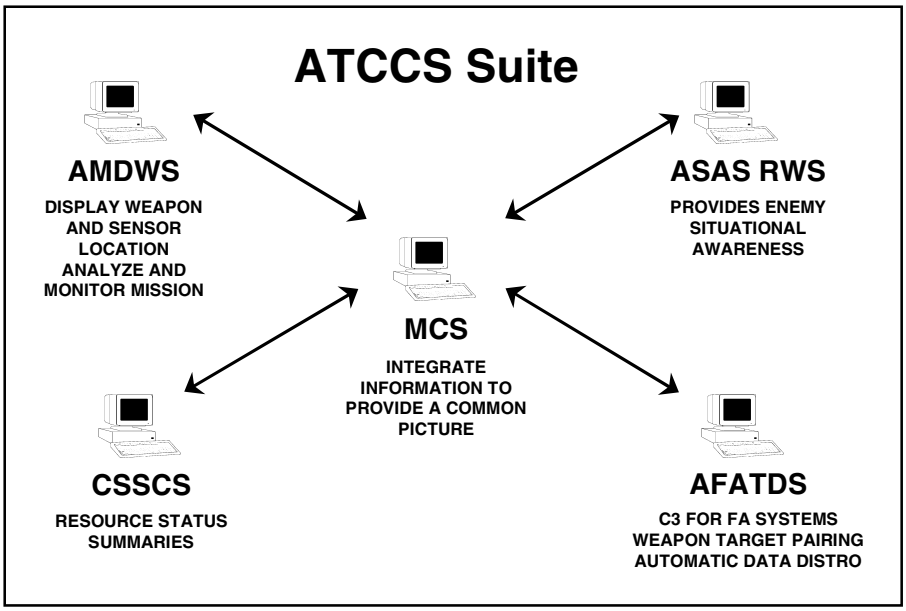
My opinion is based on my experience as a brigade plans officer in 2nd Brigade, 4th Infantry Division, from March 1998 to June 1999. This experience included the Maneuver Control System's initial operational testing and evaluation (IOT&E) and a corps-level Warfighter exercise, which fully integrated all our ATCCS systems. In addition to MCS training, I've attended many sessions of battle staff users training at our local training facility, and also have a working knowledge of other systems in the ATCCS suite. I am a user and have spent an inordinate amount of time exploring and testing all the functions on the MCS. Hence, I am one of perhaps 25 officers in the U.S. Army with *direct experience operating MCS in a field environment planning combat operations***.** Unfortunately, I have had no exposure to Force XXI Battle Command Brigade and Below (FBCB2) or applique (during our testing the lower units were fed from a simulation).

ATCCS is a tactical computer network designed to facilitate command and control from corps through battalion. The Maneuver Control System (MCS) provides corps through battalion force level commanders and staffs the ability to collect, coordinate, and act on near-real-time battlefield information and to graphically visualize the battlefield. The All Source Analysis System (ASAS) provides battle commanders with analyzed intelligence and unanalyzed combat information. The Advanced Field Artillery Tactical Data System (AFATDS) provides command, control, and communications for the U.S. Army and Marine Corps cannon, rocket, missile, mortar, close air support, and naval surface weapons systems. The Air & Missile Defense Workstation (AMDW/S) provides the commander with the ability to electronically generate and display weapon and sensor locations, manipulate map graphics, conduct terrain analysis, and analyze and monitor missions in near real time. The Combat Service Support Control System (CSSCS) provides the commander with battlefield decision support and situational awareness for planning and controlling logistical support of combat operations. Additionally, there are several other complementary systems that perform specific functions that support ATCCS — e.g., Digital Topographic Support System (DTSS). All the systems in the brigade architecture communicate internally using a local area network (LAN) and externally using a router connected to our existing mobile subscriber equipment (MSE).[1]

Although not originally designed as a planning tool, the MCS brings some marked advantages to the planning process. Its most significant effect on the process is the increased ability to share information horizontally and vertically on the digital battlefield (commonly called, but not limited to, parallel planning). Prior to the introduction of MCS and the digital network, information sharing was limited to the use of MSE and the TACFAX, and use of liaison officers (LNOs). These techniques could not convey concepts and graphics in a timely manner because the TACFAX is slow and indistinct, and LNOs had to travel sometimes 10-30 kms between their parent headquarters and the adjacent or higher unit. With MCS and the digital network, units can now rapidly transfer information, orders, and graphics among other ATCCS units in a matter of seconds.

A TTP we used to enhance parallel planning was to "pull" division products during their MDMP. During the course of their process, they would produce WARNOs and products as outlined in *FM 101-5.* For example, our division conducted PowerPoint briefings to the commanding general for mission analysis, COA development and decision, and the OPORD. They also produced their synch matrix during the wargame. As soon as these briefings, events, and graphics were complete and saved to an MCS computer, my operators would "pull" that briefing, using the file transfer protocol embedded in the MCS software. This allowed me to utilize the same information (and slides) to inform the commander of ensuing operations. As we honed our TTPs, we were able to stay so close to the division that we once produced a full brigade order and issued it only one hour after the division released the division order. Conversely, as the BCT explored branches and sequels, I could share them (which included proposed graphics and sketches) with the division plans team in order to make recommendations involving the brigade's future missions. This does not, however, replace the need for liaison officers (LNO). The human ability to relate the commander's intent cannot be replaced, but by using the FTP, LNOs can rapidly exchange information higher, lower, and to adjacent units without traveling extended distances over the battlefield.

The MCS also has the ability to overlay some analysis products, allowing the commander to better visualize the battlefield. One such product, although still underdeveloped, is the terrain analysis tool. A TTP I used with the commander was to overlay a function called elevation bands onto our area of operations. Then I would zoom in to key terrain on the battlefield. The commander would use a laser pointer to issue guidance based on the picture I presented to him, and from there I could plan branches and sequels.



In fielding the MCS, the Army still faces many challenges. The most significant is that MCS units still have a need for analog products (paper order and plastic overlay). It is unrealistic to say that all units on the modern battlefield will be equipped digitally. Multinational forces, National Guard units, and other non-digital units will likely be a part of our task organization. Additionally, commanders are reluctant to give up the "redundancy" of the paper map. Before the introduction of MCS and digital networks, staffs only had to focus on the production of one product. Even with only one product to produce, our staff struggled with time management during training and at the NTC. Imagine how long it would take to type every OPORD and Annex and make a digital drawing of the graphics, in addition to the analog product.

Currently, the brigade staff has to produce both products. For graphics, every graphic drawn on either our plastic overlay or on the MCS must be transferred manually (meaning grid by grid). Additionally, our division only provides MCS graphics, so the brigade is the "clearing house" for converting digital graphics to analog graphics. For orders, every product has to be typed. This prevents units from using matrix-type "fill in the blank" orders. With multiple products to produce, quality control becomes difficult. The MCS software must account for the seamless linkage of analog and digital products. I should be able to press a button and provide all products to non-ATCCS units. Software developers need to add functions to the MCS that give us the ability to print overlays at the scale of our choice. Our MTOE should continue to account for the analog requirement, keeping copiers and diazos on the S3's authorized property.

MCS and ATCCS face other challenges that must be overcome before fielding. One such challenge involves the map. The mapping software that MCS uses is not the same software the other ATCCS systems use, so overlays cannot be shared among all the ATCCS systems. The Army needs to agree on one map. I recommend that one map (a common database) be adopted, and all ATCCS use that map.

Another challenge crops up when operating with units that don't have MSE capabilities (i.e., maneuver battalions). The MCS's ability to rapidly transfer information is greatly hampered because non-MSE units use a combat net radio limited to a 14,400-baud modem to transfer and receive orders from higher. Our orders were normally about 40 pages and contained pictures using the embedded PowerPoint software. Microsoft Word documents transferred, but PowerPoint documents took an inordinate amount of time. The result was that information flow from brigade to battalion, with respect to operations orders, remained consistent with current techniques, the use of LNOs and runners. A better communications system must be developed so that maneuver battalions have equal capabilities to that of brigades and divisions to send and receive data. The Army should develop a "mini-SEN" housed in a single vehicle that would give the battalions the same capabilities the division has.

Also, the video monitor that comes with an MCS system is too small for integrated planning or execution. Units must use a video medium that is large enough for all to see. The medium must also be "comfortable" for the commander to use for issuing guidance. We evolved to proximas and screens covered with Plexiglas. This allowed the commander to draw COAs directly onto a blowup of the area of operations. We also invested heavily in laser pointers. We should develop an interactive screen to allow the command to see, touch, and interact with the digital map, much the way he does with a paper map or whiteboard.

The MCS software is somewhat underdeveloped. The analysis tools are immature and need to provide more detail to the brigade and below. Some tools are also clumsy and not indicative of today's technology. The MCS is currently not as user-friendly as most home computers. An intuitive, user friendly, soldier-system interface would ease the burden. We need to keep up, as much as possible, with today's technology. This will allow new soldiers familiar with home computers to rapidly learn the Army's systems.

In conclusion, when the entire ATCCS is operating, the system works well. The potential is still much greater that the performance, but we are at the point where potential is starting to meet performance. With respect to the military decision-making process, the MCS doesn't alter doctrine. The process has not, and probably will not change. But it does greatly increase the speed at which information can be passed. With ATCCS and the MDMP, I recommend units take "baby steps." Altering the commanders decision-making involves changing the way he thinks, so take it slow. In current operations, the ATCCS is an excellent way to have a common operational picture from corps to battalion, but if the conditions are not set during the planning process, the Maneuver Controls System's ability to provide the commander a common operational picture will be limited.

Notes

[1]Executive Overview briefing for the Army Battle Command and Control System given by Force XXI Training at Ft. Hood, Texas, dated January 1998.

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